

REMARKS

Applicants have canceled claims 1-45 and added new claims 50-69. The amended claims add no new matter and do not present new issues requiring further consideration or search. The Examiner's comments and rejections are addressed below.

Applicants thank Examiner Maldonado and Examiner Foursen for their discussion of the claim presented in tabular form below in a telephone interview on August 27, 2004. During the interview, the Examiners agreed that Applicants have a strong argument for why the claims as discussed are distinguished from the cited art because adding a sugar or sugar alcohol would materially alter the claimed invention. Thus, the claimed compositions "consisting essentially of" the components therein would exclude the sugars and sugar alcohols disclosed in U.S. Patent No. 5,846,695 ("Iwata").

The 35 U.S.C. § 103 (a) Rejections

The Examiner rejected claims 1-9 and 32-49 under 35 U.S.C. § 103(a) as being unpatentable over Iwata in view of U.S. Patent No. 5,798,323 ("Honda"). Applicants respectfully traverse these rejections, in light of the amendments.

As a matter of convenience, some of the Applicant's remarks are presented in tabular form below. The following table is presented with respect to claim 56. As discussed below, similar remarks apply to claims 46-55 and 57-69.

Claim element	Iwata disclosure	Honda disclosure	Applicant comment
56. A composition for stripping photoresist from integrated circuits using copper materials and low k dielectric materials consisting essentially of:	"A removing agent composition for a photoresist comprising [(1)] 0.01 to 20% by weight of a quaternary ammonium hydroxide, [(2)] 1 to 80% by weight of a	"[T]he non-corrosive stripping and cleaning composition of the present invention has four components, namely one or more selected polar solvents, one	The transitional phrase "consisting essentially of" in claim 56 excludes any ingredient that materially alters the basic and novel characteristics of the invention. Here, a basic and novel characteristic of both the Applicant's invention and Iwata's

	<p>nucleophilic amine having an oxidation-reduction potential, [(3)] <u>0.5 to 20% by weight of a sugar and/or a sugar alcohol</u>, and [(4)] water in the remaining amount" Abstract, emphasis added.</p>	<p>or more selected alkanolamine compounds, one or more selected corrosion inhibitors; and water. <u>These four components must be present in certain percentages.</u>" Col. 5, lines 16-21. "Various other ingredients known to those skill in the art may optionally be included in the stripping and cleaning composition e.g., dyes or colorants, wetting agents, antifoamers and so forth. Generally, <u>the amount of each of these other optional ingredients would be about 0.01-0.5% by weight, based on the total composition.</u>"</p>	<p>invention is a composition that strips photoresist (or, in other claims, removes etch residues) without corroding metal components of the substrate. Iwata discloses that sugar or sugar alcohol is a material ingredient that is required to prevent corrosion of metal films in the substrate. Iwata expressly teaches that the presence or absence of sugar or a sugar alcohol materially alters the basic and novel characteristics of Iwata's invention. Because the Applicant's invention and Iwata's invention share the basic and novel characteristic of effective stripping or etch removal while minimizing corrosion using related chemistries, the teaching of Iwata regarding the material effect of the presence or absence of a sugar or a sugar alcohol applies to Applicant's invention, too. Accordingly, "consisting essentially of" excludes sugars and sugar alcohols, thereby distinguishing claim 56 from the teachings of Iwata.</p> <p>Iwata: Iwata's composition includes 0.5 to 20% by weight of a sugar and/or a sugar alcohol. Iwata expressly</p>
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			<p>requires the sugar and/or sugar alcohol: "When the concentration of the sugar or the sugar alcohol is lower than the specified range, corrosion of the wiring material in the circuit cannot be sufficiently prevented" Col. 4, lines 25-28. There is no anticipation because Iwata does not disclose a 3-component composition <u>consisting essentially of</u> a choline compound, from about 2 to about 12% by weight of hydroxylamine or hydroxylamine salt, and water for stripping photoresist (or, in other claims, removing etch residues) from integrated circuits using copper materials and low k dielectric materials. In addition, claim 56 is not made obvious by Iwata because Iwata teaches that their compositions are <u>inoperable</u> due to corrosion without the sugar and/or sugar alcohol, i.e., Iwata teaches away from claim 56.</p> <p>Honda: Honda requires a 4-component composition, not the 3-component composition required by claim 56. In addition, the only ingredient shared by the Honda composition and claim 56 is water.</p>
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a choline compound;	0.01-20% quaternary ammonium hydroxide (e.g., TMAH or choline are preferred)	Honda does not disclose a choline compound.	Honda cannot anticipate claim 56 because it does not disclose a choline compound.
from about 2 to about 12% by weight of hydroxylamine or hydroxylamine salt; and	1-80% nucleophilic amine (e.g., hydroxylamines)	<p>"free of hydroxylamine compound" Claims 1 and 7;</p> <p>"[T]he use of hydroxylamine is not recommended, especially when used in a highly alkaline medium. Accordingly, hydroxylamine is not suitable for use in stripping of photoresist films or cleaning of the post-etch residues at higher temperatures." Col. 2, lines 19-25.;</p> <p>"[T]he present invention is preferably free of hydroxylamine compounds . . . " Col. 5, lines 21-22.</p>	<p>Neither the 4-component composition taught by Iwata nor the 4-component composition taught by Honda, either alone or in combination, teaches the 3-component composition in claim 56. Both Iwata and Honda teach that their respective (and different) four components must be present, so there is no motivation to selectively pick and choose from Iwata and Honda the 3-component composition of claim 56. Such selective picking and choosing of a 3-component composition goes against the teachings of both Iwata and Honda and would be done purely in hindsight.</p> <p>In addition, there is no motivation to combine Iwata's hydroxylamine-containing composition with Honda's hydroxylamine-free composition because Honda expressly teaches away from using hydroxylamine.</p>
water.	water	0.1 – 40 % water	

As shown in the table, there is no anticipation (35 U.S.C. § 102) of claim 56 because neither Iwata nor Honda discloses a 3-component composition for stripping photoresist from integrated circuits using copper materials and low k dielectric materials consisting essentially of a choline compound, from about 2 to about 12% by weight of hydroxylamine or hydroxylamine salt, and water.

Also, as shown in the table, claim 56 is not made obvious (35 U.S.C. § 103) by Iwata in view of Honda. On page 2 of the July 27, 2004 Office Action, in discussing the omission of sugar or a sugar alcohol from the composition in Iwata, the Examiner states: "Iwata et al. do not teach that the invention would not be inoperable." (emphasis added) Applicant believes that the Examiner made a typographical error in this sentence that reverses the meaning intended by the Examiner.

On its face, this statement is the same as saying: "Iwata et al. teach that the invention would be inoperable." The Applicant agrees with this (presumably unintended) statement because Iwata states: "When the concentration of the sugar or the sugar alcohol is lower than the specified range, corrosion of the wiring material in the circuit cannot be sufficiently prevented." Iwata, Col. 4, lines 25-28. In other words, Iwata expressly teaches that compositions with less than 0.5 weight percent sugar or a sugar alcohol are inoperable due to corrosion. Thus, a person of ordinary skill reading the Iwata disclosure would not be led to delete sugar or a sugar alcohol from the 4-component compositions taught by Iwata to create the 3-component composition in claim 56.

Given the cases cited by the Examiner on pages 2-3 of the Office Action (i.e., *In re Susi*, *In re Gurley*, *Merck & Co. v. BioCraft Laboratories*, and *Celeritas Technologies Ltd. v. Rockwell International Corp.*) the Examiner evidently intended to say: "Iwata et al. do not teach that the invention would be inoperable." Applicant respectfully disagrees because Iwata clearly teaches that compositions with less than 0.5 weight percent sugar or a sugar alcohol are inoperable due to corrosion (as explained in the preceding paragraph). The disclosure in Iwata that where the sugar or sugar alcohol is lower than the specified range "corrosion . . . cannot be sufficiently prevented" renders the cited cases inapposite. Those cases find that: (1) the question whether a reference "teaches away" from the invention is inapplicable to an anticipation analysis [*Celeritas* 150 F.3d 1354, 1361] and (2) there is no teaching away when a prior art reference

merely teaches that a particular composition is less than optimal, but still useable [In re Susi 169 U.S.P.Q. 423, footnote 3 and In re Gurley, 31 U.S.P.Q.2d 1130, 1132]. Neither of those findings is relevant here because: (1) neither Iwata nor Honda anticipates claim 56 and (2) Iwata teaches that a composition without a sugar or sugar alcohol is inoperable (as opposed to being merely "less than optimal, but still useable").

Thus, Iwata in view of Honda does not establish a *prima facie* case of obviousness because: (1) neither Iwata nor Honda, either alone or in combination, teaches or suggests claim 56 and (2) there is no motivation to combine the 4-component hydroxylamine-containing composition of Iwata with the 4-component hydroxylamine-free composition of Honda to create the 3-component composition of claim 56.

Similar arguments apply to claims 46-55 and 57-69. Neither the 4-component composition taught by Iwata nor the 4-component composition taught by Honda, either alone or in combination, teaches the compositions in these other claims. Both Iwata and Honda teach that their respective (and different) four components must be present, so there is no motivation to selectively pick and choose from Iwata and Honda the compositions of these claims. Such selective picking and choosing of the claimed compositions goes against the teachings of both Iwata and Honda and would be done purely in hindsight.

In addition, for claims 48, 54, and 57-69, there is no motivation to combine Iwata's hydroxylamine-containing composition with Honda's hydroxylamine-free composition because Honda expressly teaches away from using hydroxylamine.

Conclusion

In light of the foregoing, the rejections in the Office Action mailed July 27, 2004 are believed to be traversed, and Applicant requests that the rejections be withdrawn and that the claims be passed to allowance.

If the Examiner believes a discussion of the above would be useful, he is invited to call the Applicant's attorney, James McDonald, at (650) 843-7547.

Date: September 3, 2004

Respectfully submitted,



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